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THE DISTRIBUTION OF THE SUBSPECIES OF THE
BROWN TOWHEE (*PIPILO CRISSALIS*)

By H. S. SWARTH

WITH MAP AND FIGURES

(Contribution from the Museum of Vertebrate Zoology of the University of California)

THE RECENT acquisition by the Museum of Vertebrate Zoology of series of Brown Towhees (*Pipilo crissalis*) from sections not previously represented in the collection, notably from many points in the Sierra Nevada, suggested the desirability of an examination of the entire group. The revision of the ranges of the three recognized subspecies, as here set forth, is based mainly upon the collection of the California Museum of Vertebrate Zoology, together with the Grinnell, Morecom and Swarth collections, deposited in that institution. In addition the writer is indebted for the use of specimens from Oregon, loaned by the University of Oregon Museum, through the courtesy of Dr. John F. Bovard, and for the privilege of examining the extensive series of these birds in the collection of J. and J. W. Mailliard, including many specimens from critical points not represented in the collection of the Museum of Vertebrate Zoology. Altogether, 383 specimens were used in this study.

The Brown Towhee is one of several species of birds characterizing the Sonoran zones in California, that are so closely restricted in their range as hardly to extend beyond the confines of the state. While the Brown Towhee (*Pipilo crissalis*) of California is obviously similar to the Cañon Towhee (*Pipilo fuscus*) of the southern Rocky Mountain region, the two being doubtless but recently derived from a common ancestry, the wide hiatus now existing between their ranges, together with the lack of intergradation between them, is sufficient justification for their being regarded as distinct species. Indeed, the point is worth emphasizing that while the range of *Pipilo crissalis* is comparable to the ranges of certain other Pacific Coast species, such as *Psaltiriparus minimus*, *Aphelocoma californica*, and the west Californian races of *Pipilo maculatus*, all with related forms in the Rocky Mountain region comparable to *Pipilo fuscus*, the Brown Towhee has no representative race in eastern California such as is possessed by each of the other bird species cited. It seems remarkable that no towhees of this group should exist on the east slope of the Sierras and in the Upper Sonoran zone of the desert mountains.

The California Brown Towhee was first made known to science through the description by Vigors of *Fringilla crissalis* (Zool. Voy. "Blossom", 1839, p. 19). His type specimen is listed in the collection of the British Museum as from Monterey (Sharpe, Cat. Birds Brit. Mus., XII, 1888, p. 754). Birds from the vicinity of Monterey belong to the reddish-colored race of the central coast region of California (though they do not show the extreme manifestation of the characters of that subspecies), and as there is no question of the migration of individuals to cause confusion, for the Brown Towhees are non-migratory, the name *crissalis*, applied to a specimen from this region, must, of course, be used for the central coast race.

The species, long regarded as a subspecies of *Pipilo fuscus*, was not further divided until the description by Anthony (Auk, XII, 1895, p. 111) of *Pipilo fuscus senicula*, from San Fernando, Lower California. In 1899 McGregor (Bull. Co-

per Orn. Club, i, 1899, p. 11) described *Pipilo fuscus carolae*, from Battle Creek, near Balls Ferry, Shasta County, California. This subspecies was accepted by the A. O. U. Committee (Auk, xviii, 1901, p. 306), but was subsequently repudiated both by the original describer (McGregor, Pac. Coast Avif., no. 2, 1901, p. 15) and by the A. O. U. Committee (Auk, xxi, 1904, p. 415), as supposedly rep-

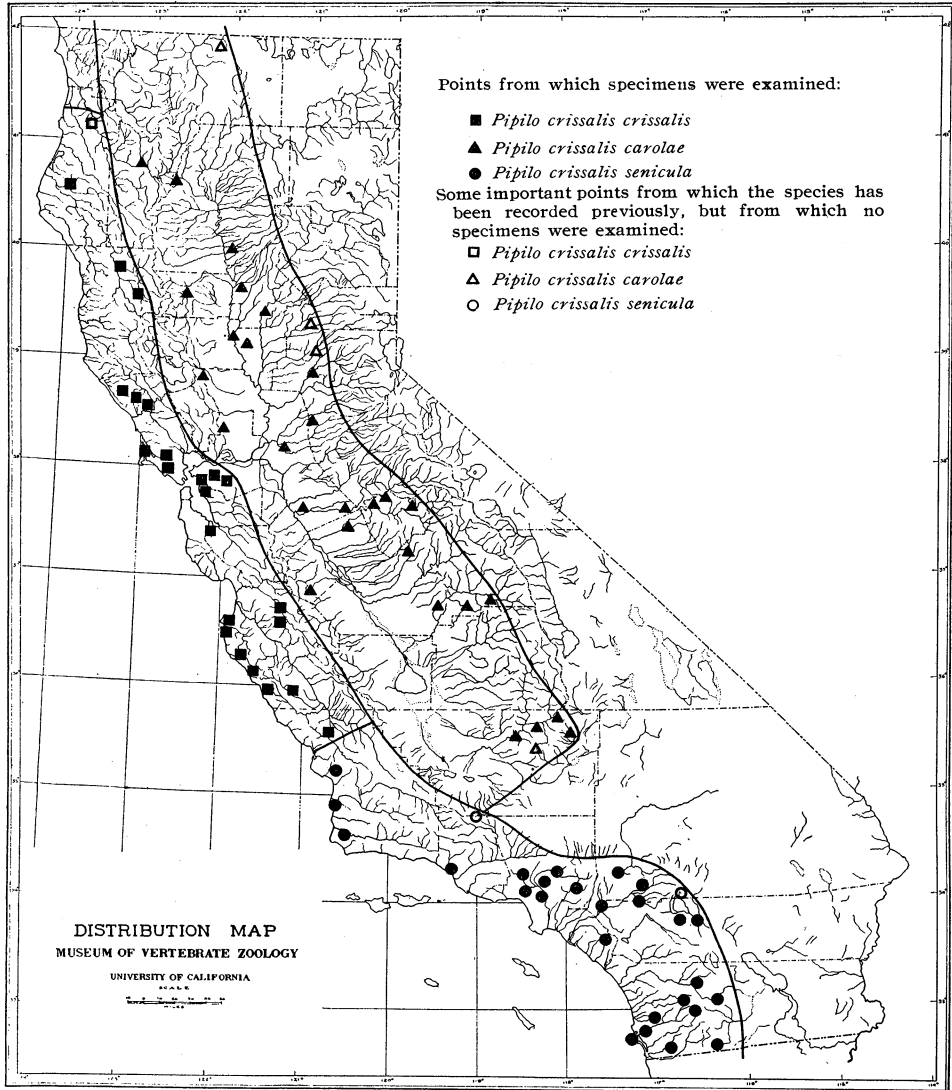


Fig. 19. DISTRIBUTION IN CALIFORNIA OF THE SUBSPECIES OF *Pipilo crissalis*.

resenting the fresh fall plumage of *Pipilo c. crissalis*. The name *carolae* was later revived by Grinnell (Condor, xiv, 1912, p. 199; Pac. Coast Avif., no. 11, 1915, p. 134) as designating a race occupying northern California and the Sacramento Valley. Recently obtained material is corroborative of the validity of this subspecies with a more extensive range than was heretofore supposed.

In newly acquired fall plumage the three subspecies of *Pipilo crissalis* are readily distinguished, the general tone of *crissalis* being reddish, and of *carolae* gray, while *senicula* is appreciably darker than the other two. *Senicula* is further distinguished by its small size and short, stubby bill. Color differences between the races are somewhat obscured in worn and faded plumage, of course, but even in such cases they can usually be separated without difficulty. This statement naturally does not apply to specimens from intermediate localities, in which intergradation between races occurs.

***Pipilo crissalis crissalis* (Vigors).** California Brown Towhee

Type locality.—Monterey, California.

Range.—Humid coast region of northern and central California, from Humboldt County at the north, south to San Luis Obispo County; in other words, the relatively narrow strip west of the inner coast ranges in Humboldt, Mendocino, western Sonoma and Marin counties, the San Francisco Bay region east into Contra Costa County, and southward in San Mateo, Santa Clara, Santa Cruz, San Benito and northern San Luis Obispo counties.

Specimens examined from the following localities.—Humboldt County: Cuddeback, 3. Mendocino County: Mount Sanhedrin, 1; Covelo, 4. Sonoma County: Guerneville, 7; Cazadero, 2; Freestone, 5. Marin County: Bolinas, 1; Nicasio, 4; Inverness, 2. Alameda County: Berkeley, 4; Oakland, 1; Piedmont, 1; Alameda, 1. Contra Costa County: Walnut Creek, 3; Mount Diablo, 1. Santa Clara County: Palo Alto, 6. Monterey County: Pacific Grove, 2; Carmel River, 1; Little Sur River, 1; Big Creek, 3; Partington Point, 1; Jolon, 2. San Benito County: Paicines, 5; Mulberry, 1. San Luis Obispo County: Paso Robles, 4. Total, 66.

Distinguishing characters.—The generally reddish coloration serves to distinguish *Pipilo crissalis crissalis* from either of the other two related subspecies. In measurements, *P. c. crissalis* in its typical form is close to *P. c. carolae*. Where the range of *P. c. senicula* is approached there is a diminution in size, so that in this sense *crissalis* may be said to be intermediate in measurements between *carolae* and *senicula*.

Remarks.—Brown Towhees from the general vicinity of Monterey, the type locality of *Fringilla crissalis*, by no means exhibit the extreme differentiation of the peculiar characteristics of the coast race. The bright reddish coloration of this subspecies, the outstanding feature of the race, is farthest developed in birds from immediately north and south of San Francisco Bay, as shown by specimens from Sonoma, Marin and Santa Clara counties. Between this extreme and that of the slaty hue of the birds from San Diego County, there is a nicely graded series of steps, changes in hue corresponding closely with the geographical position of the specimens examined. Changes in measurements take place similarly.

A series of skins from Paicines and Mulberry, San Benito County, about at the boundary line I have indicated between the ranges of *P. c. crissalis* and *P. c. carolae*, are intermediate in character between these two races. I have referred these birds to the subspecies *crissalis*, which they most nearly resemble, but in their indeterminate appearance they are closely similar to other intermediates from San Luis Obispo County, between *crissalis* and *senicula*.

Material at hand from Humboldt and Mendocino counties is limited in quantity, and unsatisfactory for subspecific discrimination, the specimens being all young birds, or else faded and molting adults. However, they appear to be all referable to *P. c. crissalis*, though again less reddish colored than San Francisco Bay specimens; possibly they all exemplify varying stages of intermediateness toward *P. c. carolae*.

***Pipilo crissalis carolae* McGregor.** Northern Brown Towhee

Type locality.—Battle Creek, near Balls Ferry, Shasta County, California.

Range.—From southwestern Oregon (east of the Coast Range in Douglas and Jose-

phine counties) south through the interior of northern and central California, in the Sacramento and San Joaquin valleys, and on the western slope of the Sierra Nevada.

Specimens examined from the following localities.—Oregon. Douglas County: Roseburg, 5. Josephine County: Kerby 2; Grants Pass, 5. California. Shasta County: Tower House, 2. Trinity County: Helena, 1. Tehama County: Mill Creek, 5 miles northeast Tehama, 10. Glenn County: Winslow, 5. Butte County: Chico, 2; Oroville, 1. Sutter County: Sutter, 1; West Butte, 1. Yolo County: Rumsey, 18. Solano County: Vacaville, 3. Eldorado County: Limekiln, 1. Amador County: Carbondale, 5. San Joaquin County: Tracy Lake, 1. Stanislaus County: LaGrange, 1; Modesto, 4. Merced County: Snelling, 2; 22 miles south of Los Baños, 1. Mariposa County: Pleasant Valley, 2; Coulterville, 1; El Portal, 17. Madera County: Raymond, 2. Fresno County: Hume, 1; Dunlap, 8; Minkler, 7. Kern County: Weldon, 4; Onyx, 2; Bodfish, 4; Walker Pass, 1. Total, 120.

Distinguishing characters.—Large size and grayish coloration. The color differences suffice to distinguish *carolae* from *crissalis* even in excessively worn plumage. Between *carolae* and *senicula*, while faded specimens sometimes become quite similar in color, there are distinguishable differences in measurements. *P. c. carolae* is of large size with relatively long and slender bill. (See fig. 20.)

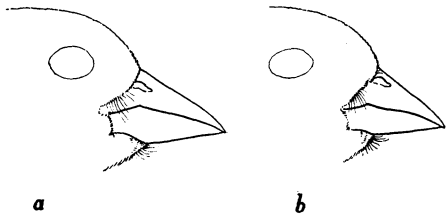


Fig. 20. BILLS OF TWO SUBSPECIES OF THE BROWN TOWHEE (*Pipilo crissalis*); NATURAL SIZE.

a. *Pipilo crissalis carolae*, ♂ AD.; NO. 17360, MUS. VERT. ZOO.; TOWER HOUSE, SHASTA CO., CALIF.; MARCH 1, 1911.

b. *Pipilo crissalis senicula*, ♂ AD.; NO. 3111, MUS. VERT. ZOO.; VALLE-VISTA, RIVERSIDE CO., CALIF.; AUGUST 31, 1908.

Remarks.—The color differences characterizing *Pipilo crissalis carolae* were noted in specimens from the habitat of that subspecies by at least one author some years prior to the naming of the race. Anthony (Auk, xii, 1895, p. 110) in a discussion of the brown towhees, remarks on the less rufescent coloration of birds from Butte and Calaveras counties, as compared with typical *crissalis*, and on the pallor of a specimen from the south fork of the Kern River. The coloration of the latter bird, however, should not be considered as indicative of intergradation toward *Pipilo fuscus mesoleucus*, the possibility of which was suggested, for individuals from that region, grayish colored even

in fresh plumage, are especially subject to fading, from the fierce sunlight to which they are exposed, as shown by additional specimens from the same section.

There are no skins at hand showing intergradation between *carolae* and *senicula*. Specimens from the southern extremity of the Sierra Nevada, birds geographically nearest to the southern California race, show as wide divergence from the latter as do those from Oregon. The floor of the San Joaquin Valley is not suited to the needs of the Brown Towhee, and the species is absent from most of this region; but one specimen at hand taken at a point twenty-two miles south of Los Baños, Merced County, at the east base of the Mount Diablo range, though showing a decided approach toward *crissalis* is still referable to *carolae*.

***Pipilo crissalis senicula* Anthony. Anthony Brown Towhee**

Type locality.—San Fernando, Lower California.

Range.—Coastal slope of southern California and northern Lower California. South in Lower California "at least to parallel of 29°" (Ridgway, Birds N. and Mid. Am., i, 1901, p. 437). More explicitly, in southern California in the Upper and Lower Sonoran zones, west from the eastern bases of the mountains forming the desert divides, in San Diego, Orange, Riverside, San Bernardino, Los Angeles, and Ventura counties; north to

southern San Luis Obispo County, where intergradation with *Pipilo crissalis crissalis* takes place.

Specimens examined from the following localities.—San Diego County: San Diego, 8; Julian, 2; Dulzura, 4; Jacumba, 3; Point Loma, 2; Witch Creek, 8; Warner Pass, 1; Foster, 1; Chula Vista, 1; La Puerta, 1; Cuyamaca Mountains, 1. Orange County: Trabuco Canyon, 1. Riverside County: San Jacinto Mountains, 28; Palm Springs, 2; Banning, 1; Riverside, 9; Jurupa Mountains, 4; Reche Canyon, 13. San Bernardino County: Cajon Pass, 4; Lytle Creek, 2; San Bernardino, 3. Los Angeles County: Los Angeles, 9; Pasadena, 57; Glendora, 1; Azusa, 5; Mount Wilson, 1; Linda Vista, 3; San Fernando, 6; Santa Monica Mountains, 1. Ventura County: Ventura, 4. Santa Barbara County: Lompoc, 8; Guadalupe Lake, 2. San Luis Obispo County: San Luis Obispo, 1. Total, 197.

Distinguishing characters.—Small size, dark coloration, and short, stubby bill.

Remarks.—In the distribution accorded *Pipilo crissalis senicula* by Ridgway (Birds N. and Mid. Am., 1, 1901, p. 436) and the A. O. U. Check-List (1910, p. 281) this subspecies is confined to northern Lower California and that portion of southern California that lies south of the San Bernardino Mountains. Grinnell (Pac. Coast Avif., no. 11, 1915, p. 134), on the other hand, extends the range northward throughout the San Joaquin Valley, and along the coast through San Luis Obispo County. Specimens now at hand from certain critical points indicate that the dividing line between *senicula* and *crissalis* should be drawn about midway between the extremes above indicated. From southern California there is an abundance of material in all stages of plumage, sufficient to justify the assertion that there is uniformity of appearance in birds from San Diego, Orange, Riverside, San Bernardino and Los Angeles counties. Going northward, specimens from Ventura show the first tendency toward the reddish coloration of *crissalis*, specimens from points in Santa Barbara County are intermediate, though still nearest to *senicula*, and one from San Luis Obispo might almost as readily be referred to *crissalis* as to the southern subspecies. There are no skins at hand showing intergradation between *senicula* and *carolae*.

MEASUREMENTS IN MILLIMETERS (AVERAGE, MINIMUM AND MAXIMUM) OF THE SUBSPECIES OF THE BROWN TOWHEE (*Pipilo crissalis*)

	Wing	Tail	Culmen	Tarsus	Middle toe without claw
<i>Pipilo crissalis senicula</i> (10 males from San Diego County)	92.9 (90.5- 95.0)	106.6 (101.5-109.0)	14.7 (14.2-15.0)	26.8 (25.5-28.0)	18.2 (16.5-20.0)
<i>Pipilo crissalis crissalis</i> (10 males from Santa Clara, Alameda, Sonoma and Marin counties)	95.3 (91.5-100.5)	105.2 (98.5-110.0)	15.4 (15.0-16.0)	28.6 (28.0-29.5)	19.7 (19.0-21.0)
<i>Pipilo crissalis carolae</i> (10 males from Sierra Nevada in Fresno and Mariposa counties)	100.7 (95.0-107.0)	113.9 (107.0-119.0)	15.6 (15.0-16.5)	28.1 (27.0-29.2)	19.3 (19.0-20.0)
<i>Pipilo crissalis carolae</i> (10 males from Sacramento Valley)	98.1 (91.0-103.0)	109.0 (105.0-114.0)	15.7 (15.5-16.5)	28.3 (27.0-30.0)	19.8 (18.0-21.0)
<i>Pipilo crissalis carolae</i> (5 males from southern Oregon)	97.5 (94.0-101.0)	109.5 (106.5-112.0)	15.7 (15.0-16.0)	27.8 (26.5-29.0)	19.8 (19.0-20.5)

Berkeley, California, February 7, 1918.